Level Two or Three

4-H Science, Engineering and Technology Project Activity Guide

Withstanding the Winds

Resilience Science

Effects of High Wind

High-wind events can form slowly offshore or very rapidly over land. In most cases, there is not enough time to protect your home before a storm strikes. This is why construction should be adapted to withstand regional vulnerabilities.

High-Wind Events and Hazards

Hurricanes

Cat. 1: 74-95 mph
Cat. 2: 96-110 mph
Cat. 3: 111-129 mph
Cat. 4: 130-156 mph
Cat. 5: 157 or higher

Tornadoes

EF0: 65-85 mph
EF1: 86-110 mph
EF2: 111-135 mph
EF3: 136-165 mph
EF4: 166-200 mph
EF5: 200 or higher

Thunderstorms

Along with rain and lightning, winds produced during thunderstorms can range from 30 mph to 100 mph.

Wind-Driven Hail

Hail is a common result of tornadoes and/or thunderstorms. It can range from the size of a marble to a softball.

Level:
Two or Three

Life skills:
Decision making
Problem solving
Responsibility
Awareness

Goal:
Educate young people about wind-resistant construction and mitigation

Authors:
Shandy Heil

Damage Identification

Hurricane-force winds, tornadoes and hail produce different types of damage to buildings. Read the storm damage clues below and draw a line to the picture that shows the appropriate type of damage.

Hurricane

High-wind damage can blow off wall siding and shingles, produce wind-borne debris capable of breaking windows and, in some cases, cause structural damage to the walls and roof.

Hail

Damage includes broken windows and dents or punctures in wall siding and shingles.

Tornado

High winds, especially in the EF3-EF5 range, can tear down exterior walls and rip off rooftops. Such events are so severe that often only interior rooms, such as bathrooms or closets, are left intact.

Learn more by visiting LSUAgCenter.com/preventingwinddamage

What types of high-wind events affect your parish?

Internet Search

Find out which types of high-wind events have affected your community in the past. List the event names, dates and intensities of the storms. Use the storm intensity descriptions on Page 1 to figure out the wind strength for each.

_____

_____

_____

High-Wind Mitigation

Use the *match game* below to learn more about hazard-resistant construction methods for high winds.

What Is Mitigation?

Hazard mitigation is a way of adapting to the damaging forces caused by natural hazards. Buildings that are located within high-wind zones are required to be designed and built to withstand the damaging forces of wind events. Building materials used for wind-resistant construction must be tested and rated for that use.

B

A

C

D

E

_____ Deck Tape: Used to tape seams of roofing plywood to prevent the roof from leaking if shingles and roofing underlayment are blown off.

_____ Structural Connectors: Used to tie roof framing to walls and walls to the foundation.

_____ Opening Protection: Covers windows and doors to protect them from wind-borne debris.

_____ Impact Resistant Windows: Will crack with extreme force but stay in place so water and wind do not enter the inside of the building.

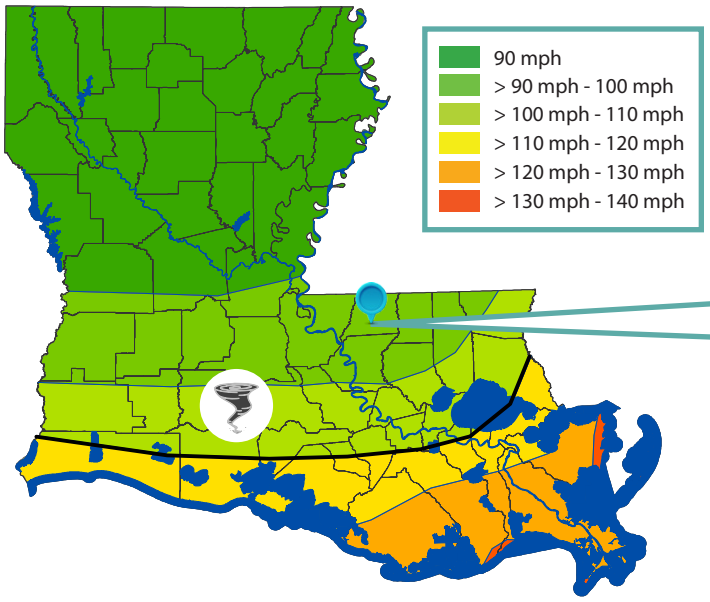
_____ Safe Room: Reinforced room that remains in place when a tornado tears the rest of the building apart.

Find Your Wind Speed

Step 1 – Go to the website: Maps.LSUAgCenter.com and choose "basic wind speed."

Step 2 – Enter your address and let the system find your property. On some devices, you may have to open the search tool. The search will place a pin where your address is located.

Step 3 – Choose the "hybrid" layer (aerial photo with roads). If the pin is in the wrong place, pan around the map and click to put a new pin where your property really is.



Basic Wind Speed Map

Louisiana Residential Building Code

Point 1 (30.7154, -91.0538)

FIND THIS INFORMATION

- Residential wind speed
- Ground elevation

Record information for your home and for a point with a different wind speed.

Address	Wind Speed	Ground Elevation

Tornadoes in Louisiana

Louisiana is in "Dixie Alley," just outside "Tornado Alley."

Among the hottest spots for tornadoes in Louisiana are Lafayette and east Acadia parishes, according to the state hazard mitigation plan.

References: Hail Damage Image, www.WRUFWeather.com; Safe Room Image, www.NewsOn6.com

Visit our website: www.LSUAgCenter.com

William B. Richardson, LSU Vice President for Agriculture
Louisiana State University Agricultural Center
Louisiana Agricultural Experiment Station
Louisiana Cooperative Extension Service
LSU College of Agriculture

Pub. 3400 (350) 7/15

The LSU AgCenter and LSU provide equal opportunities in programs and employment.

Supported in part by the Federal Emergency Management Agency under Grant No. 1603-DR-LA, Project 39 Statewide Hazard Mitigation Community and Outreach Project, "Get a Gameplan."

Visit our website: www.LSUAgCenter.com/4hprojects

Louisiana 4-H is an educational program of the LSU AgCenter.